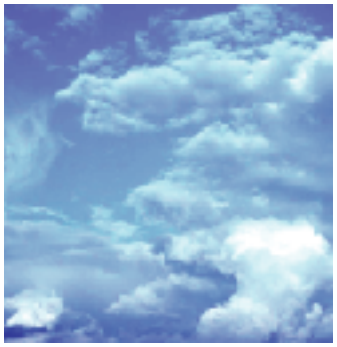
2000
NORTH CAROLINA



State of Environment Report

STATE OF NORTH CAROLINA
OFFICE OF THE GOVERNOR
20301 MAIL SERVICE CENTER • RALEIGH, NC 27699-0301

JAMES B. HUNT JR.
GOVERNOR

NC SCHOOLS FIRST IN AMERICA 2010

Dear Fellow North Carolinians:

Few states can match North Carolina's beauty, our resources or our quality of life. The environment is critical to the health of our families and the health of our economy. We have an obligation to protect and restore North Carolina's environment so our children will grow up in a state with clean air and clean water.

Over the past eight years, we have made great strides in addressing our environmental needs and have greatly enhanced natural resources protection through our "Million Acre Initiative" and other Smart Growth efforts. However, as this *2000 State of the Environment Report* clearly illustrates, we still have a lot of work to do.

Our majestic mountains in the west, our outstanding coastal area and the wonderful lands and waters in between represent a natural trust for future generations. As a state and as individuals, we all must do our very best to act as responsible stewards of our God-given natural resources. We all have a fundamental responsibility to care for our land, air and water so our children and their children will be able to enjoy North Carolina's natural bounty.

Education has been a cornerstone of this administration. It is the key to our state's future success. The same is true for success in meeting our environmental stewardship responsibilities. Our parks, forests, zoo, aquariums and the new Museum of Natural Sciences are all places where North Carolinians learn about our natural world and what we can do to protect, preserve and restore it. An informed, educated and involved citizenry is essential for meeting our environmental protection goals.

As you read this report, please take special note of the actions you can take to improve and protect the environment. Make them a part of your daily routine. Get involved in environmental issues that affect your community. Individually, you can make a difference. And by working together, we can ensure that our natural resources, healthy environment and vibrant economy continue to make North Carolina the best place to live, work and visit.

My warmest personal regards.

Sincerely,

James B. Hunt, Governor

Bill Holman, Secretary
N. C. Department of Environment and Natural Resources

LOCATION: 116 WEST JONES STREET • RALEIGH, NC 27699-0301

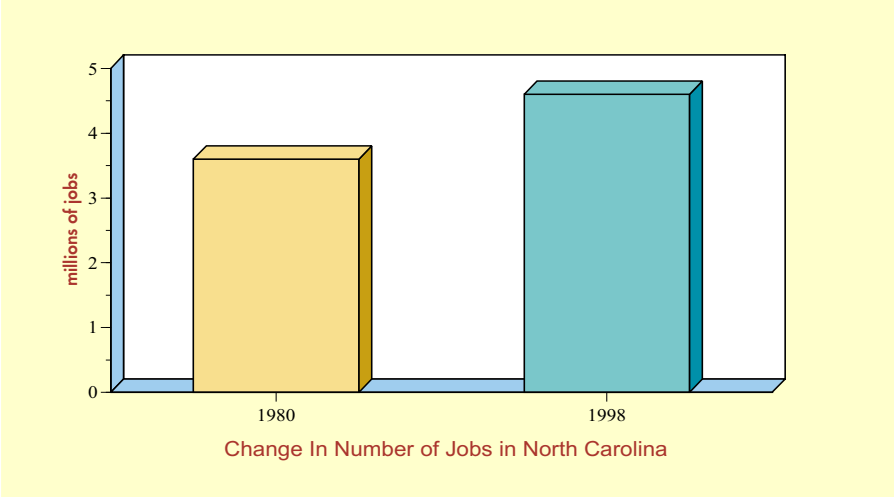
INTRODUCTION

North Carolina is a large and diverse state rich in a variety of resources, from its people and its vibrant economy to its environment and natural resources. As North Carolina continues to grow and prosper, maintaining our environmental heritage will become one of our biggest and most important challenges. In order to meet that challenge, we must find balanced approaches in the ways we use all of North Carolina's valuable resources in our on-going efforts to sustain environmental quality and economic activity into the next millenium.

The need for striking these balances is quite clear considering our state's growth over the last 10 years. According to Census Bureau estimations, N.C.'s population increased by about 1.7 million between 1980 and 1999. Urbanized counties or those near urban areas, chiefly in the Piedmont crescent, grew rapidly during that time. The attractiveness of life in our mountains and along our coast also prompted a rise in growth in many of those communities as well. The age group growing fastest, on a percentage basis, is retirees.

North Carolina has experienced tremendous economic growth over the last two decades as well. Protecting and preserving our natural resources as well as our economic prosperity will continue to be among the state's highest priorities.

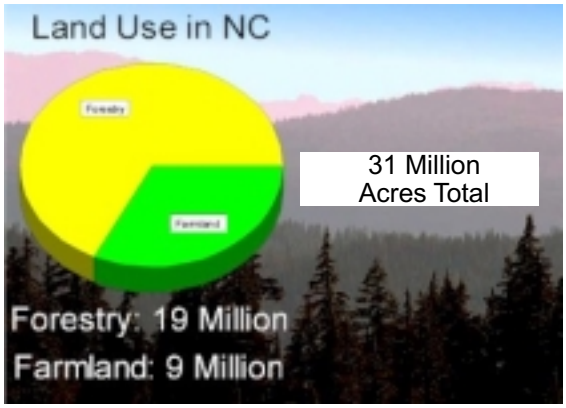
There were over 4.6 million jobs in North Carolina in 1998, compared to about 3.6 million in 1980. During that period, jobs in agriculture, forestry, and fishing along with manufacturing declined while the number of jobs in service sectors such as hotels/lodging, health, legal, business, retail trade, finance, insurance, and real estate increased. Over 25 percent of all North Carolina jobs are in the services sector, another 17 percent are in the retail sector, and 18.5 percent are in manufacturing. North Carolina's manufacturing sector, while declining in total jobs, is still an important employer in the state.



Change In Number of Jobs in North Carolina

The gifts of nature bestowed upon North Carolina are the building blocks of the environment that serves all of us. North Carolina has three distinct physiographic regions; the Mountains, the Piedmont, and the Coastal Plain, each offering unique and important land and water uses. Seventeen river basins contain over 35,000 miles of streams and rivers that flow through North Carolina east and south to the Atlantic, west to the Tennessee River, and north to the Ohio River. Prevailing weather systems move air to us from our neighbors to the west, south, and north, which coupled with our own activity, affects the air quality of North Carolinians.

North Carolina has become nationally prominent in water quality, air quality, agriculture management and wildlife habitat protection. The state pioneered the application of basin wide planning, a holistic approach to managing the resources in an entire river basin. The focus on cleaning up our waters earned North Carolina the third highest ranking from the National Wildlife Federation for our significant strides to improve impaired water bodies. The rapid growth in numbers of hogs produced in the state over the last 10 years is a factor stressing our air quality and water quality. Odors associated with animal waste facilities have also created conflicts between neighbors in rural communities.



Our State Agriculture Cost Share Program is a national model for the adoption of best management practices and we currently have the toughest hog regulations in the nation. In 1998, North Carolina enacted odor reduction requirements on hog farms and is currently pursuing mechanisms to reduce the overall levels of nitrogen released to the environment from hog farms. North Carolina has 190 air quality monitors, more than any other state in the Southeast except Florida, providing beneficial data on which to base air quality regulations. We also have improved the protection of wildlife habitat along our rivers through a voluntary dam removal program. Since 1997, the Department of Environment and Natural Resources has assisted in the voluntary removal of three dams in the Neuse River Basin, opening up almost 1,000 miles of stream to fish spawning. Fish species that will benefit from the removal of the dams are the American Shad, striped bass, short-nosed sturgeon, Atlantic sturgeon, hickory shad and alewife. Dams removed include the Quaker Neck Dam by Carolina Power & Light Co. near Goldsboro, the Cherry Hospital Dam near Goldsboro, and Rains Mill Dam in Johnston County.

HURRICANE FLOYD IMPACTS

In September 1999, Hurricane Floyd and the associated flooding that followed the storm led to a series of events that made it one of, if not the greatest environmental disasters in North Carolina history.

After the storm, dozens of municipal wastewater and drinking water systems were either flooded, lost power or both. As a result, local residents were without drinking water for periods ranging from several hours to several weeks while the systems were repaired and put back in operation. Flooding and power failure caused wastewater systems across eastern North Carolina to release tens of millions of gallons of untreated wastewater into rivers and streams. A sizeable number of warehouses and other chemical storage facilities flooded, spilling unknown amounts of unknown materials into the rivers. The heavy rains and the excess floodwaters created a significant dilution factor, but the amount of raw wastewater released into the ecosystems was unprecedented.

Many eastern North Carolina residents rely upon wells for their drinking water. Over 12,000 water samples have been collected from wells that were flooded, and the state has identified 2,800 wells that need further testing. The Department of Environment and Natural Resources identified 25 at-risk dams that were damaged and needed to be either repaired or breached to protect public health and safety.

More than 200 hog lagoons are located in the floodplains of eastern North Carolina. More than 40 hog lagoons were flooded and six failed after the storm. In addition, the floodplains in the affected counties are home to 130 hazardous waste sites (35 of which were compromised by flooding) and 250 high-hazard landfills. Unknown quantities of garbage, chemicals and other materials were released to the state's waters as a result of the flooding. The state has also identified 130 underground storage tanks that may have leaked into the groundwater.

The Department of Environment and Natural Resources has expanded water quality monitoring and testing in the affected areas, but the unknown quantity of raw waste that contaminated our waters makes it difficult to determine the long-term impacts to water quality.

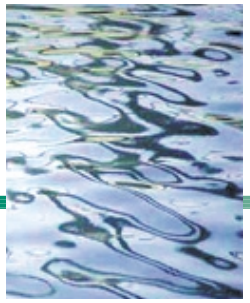
Emergency Aid in Special Session

In response to this disaster, Governor Hunt called for a special session of the NC Legislature to appropriate emergency aid. Based on Governor Hunt's request, the Department of Environment and Natural Resources received $27.4 million from the General Assembly for immediate use to support victims of Hurricane Floyd. An additional $11.4 million was provided for commercial fishing assistance. Hunt's flood-relief package allows the state to continue testing of polluted drinking water wells, expand monitoring of water quality and clean up junkyards and disposal sites in extensively flooded areas of the eastern third of the state. The funding addresses critical measures to help us protect public health and continue to assess environmental damage during the victims' long rebuilding process.

Commercial fishermen were allowed to apply for grants to reimburse up to 60 percent of actual losses in equipment and fish landings. Sixteen owners of high hazard dams were awarded loan money to repair their dams. The Division of Waste Management received funds to locate and assess old solid and hazardous waste facilities, and $4.5 million to help cleanup and remove 11 junkyards from the floodplain. The Underground Storage Tank Section is using funds to assess and remediate as necessary facilities with underground petroleum tanks in need of repair. The department has also utilized $5.7 million from the Clean Water Management Trust Fund to begin closing 14 hog lagoons in floodplains and converting the property to conservation easements. It is also pursuing other available federal funding to remove more of the approximately 200 hog lagoons located in the floodplains.

The Division of Environmental Health, in coordination with local health departments and the Department of Health and Human Services, retested wells to ensure they were properly decontaminated. The Division of Water Quality, working in collaboration with the University of North Carolina, North Carolina State University, East Carolina University, and Duke University, expanded its water quality testing program and installed monitors in rivers and sounds to continuously record data on the conditions of the water. Fish and simulated fish tissue samples deployed in the rivers, are being analyzed for presence of contaminants.

Although a tremendous amount of sediment and contaminants was washed into the rivers, sounds and estuaries, dead zones and large fish kills associated with the contamination have fortunately not yet occurred. Short-term monitoring and assessment has indicated that, in the short-term, the contamination and environmental damage were not as bad as predicted. The department will continue to closely monitor the situation for long-term effects.



CLEAN WATER

Importance of Clean Water

Clean water is essential to maintain the environment, support good public health, and sustain a vibrant economy in North Carolina. Adequate supply of clean water is an increasing concern in the state and has become a priority area for the Department of Environment and Natural Resources. More focus is being brought to bear to improve water quality protection and balance uses among the environment, public health, and the economy. A sampling of activity underway is included in the following clean water initiatives:

1. **Basinwide Planning** - Stakeholder Involvement Initiatives - In the past three years, the department has significantly expanded its efforts to increase involvement by the public and affected stakeholders in the planning and decision-making processes. These efforts to involve stakeholders have surpassed all historical initiatives. Following are several examples of the expanded stakeholder involvement program.

   - Basinwide Planning Meetings - In developing the basinwide plans for each of the state's 17 major basins, Division of Water Quality (DWQ) staff holds an average of two workshops and two public meetings in each basin.

   - Tar Pamlico River Stakeholders - DWQ initiated nonpoint source nutrient rulemaking in the Tar-Pamlico basin by convening seven stakeholder teams to develop draft rule language and other recommendations for the Environmental Management Commission (EMC).

   - Neuse River Nutrient Reduction Effort - An extensive stakeholder process was associated with the development and implementation of the Neuse River Nutrient Sensitive Waters (NSW) Management Strategy. Six public workshops and six public hearings were held throughout the year. The Neuse River NSW Management Strategy, which included buffer requirements and discharge reductions became effective in August 1998. Activities include initiating a Neuse Agricultural Inter-agency Workgroup and forming a Neuse stormwater stakeholder team to create the model stormwater plan.

   - Unified Watershed Assessment (UWA) - The UWA program is part of the President's Clean Water Action Plan. In it, each state has been asked to assess its watersheds and work with stakeholders to develop restoration action plans for five high priority watersheds.

- River Basin Councils - Five river basin regional councils have been established to assist with implementing the Albemarle Pamlico Comprehensive Conservation and Management Plan. These "advisory" councils are a consortium of stakeholders representing the 36 counties in the region.

2. **Water Supplies** - Two aquifers in the central coastal plain of North Carolina, the Black Creek and the Upper Cape Fear aquifers, are rapidly being depleted due to overuse. Sustainable water sources must be developed and water conservation measures must be put in place. Water use from these two aquifers must be gradually reduced until the aquifers can recharge and new sources of water must be developed. The EMC has proposed rules to assure that water use from the threatened aquifers will be gradually reduced in a manner that is fair to all users. Local governments will need assistance in planning alternative sources and in developing water conservation programs.

3. **Water Quality Data Base Management (BIMS)** - Gathering and assimilating information is currently very cumbersome because several mainframes and computer systems need to be integrated. BIMS, the Basinwide Information Management System, is being built specifically to provide a single, reliable, and easy-to-access source for critical water quality data, both to DWQ employees and to interested citizens. In addition, BIMS will automate certain repetitive functions performed by employees, allowing them more time to perform other duties. The department is moving towards a data management system that integrates both water and air data. This will present challenges to the programs over the next few years.

4. **Enforcement and Compliance**

- New Enforcement Policy - In August 1997, then Secretary McDevitt directed the state's water quality programs to take stronger enforcement actions against polluters of North Carolina's waterways. Since that time, DWQ has taken several steps to improve enforcement procedures. The ultimate goal of the enforcement policy is to achieve better water quality through increased compliance. In the first year under the new program, water quality cases increased from 189 to 485, and fines increased almost four-fold from $530,000 to $1.9 million. Figure 1 shows the recent compliance history of NPDES permits in North Carolina.

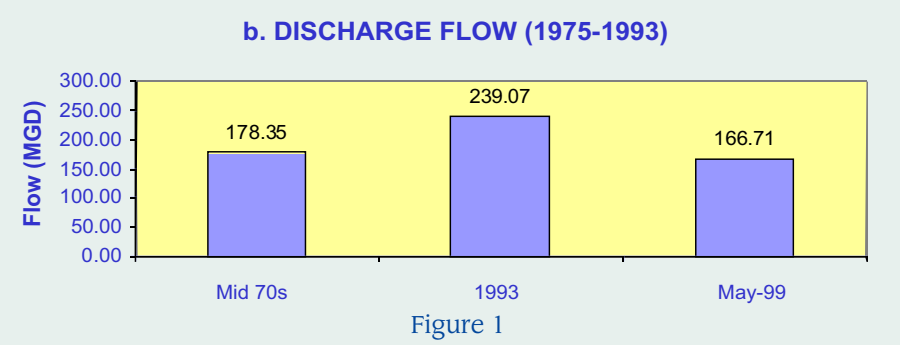
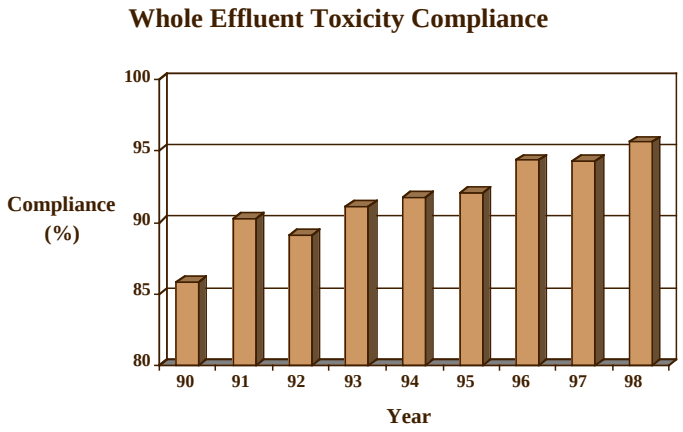


Figure 1

- Whole Effluent Toxicity Compliance - National Pollutant Discharge Elimination System permits can contain numerical limits for a specific toxic substance and/or whole effluent toxicity limits that are designed to protect aquatic life at both the chronic and acute levels. North Carolina is recognized nationally for its whole effluent toxicity program. Prior to program implementation, one in four facilities evaluated for toxicity had the potential to create acutely toxic conditions in its receiving stream. Even though the number of facilities having whole effluent toxicity limits has grown steadily since 1990, the state's overall compliance rate for this parameter has steadily increased.



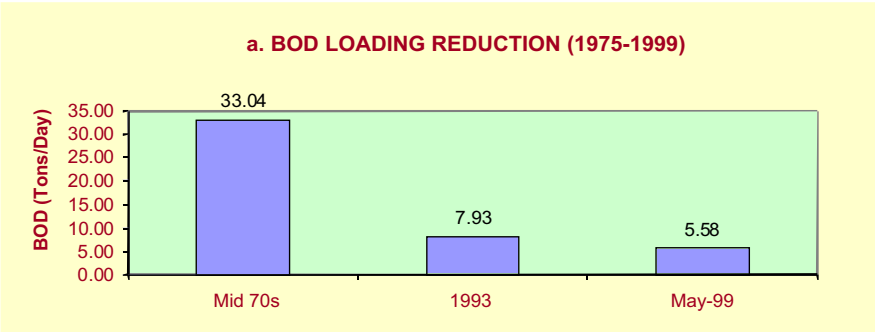
5. **Nonpoint Source Control Initiatives** - Nonpoint source pollution includes: stormwater runoff, animal waste, agricultural runoff , sedimentation, forestry activities, and atmospheric deposition. The Environmental Management Commission has taken bold steps in the past few years to address some of the most difficult pollution issues: diffuse sources of pollutants. The goal is to create mechanisms that would achieve new levels of controls without causing unacceptable social and economic impacts. Some of the recent initiatives of the commission are shown below:

- Tar-Pamlico Nutrient Management Strategies - Fish kills in the estuary and other nutrient-related problems are an on-going concern for the Tar-Pamlico basin, which is designated a Nutrient Sensitive Water (NSW). Under the basin's NSW strategy, state agencies and stakeholders in the basin are working to achieve nutrient reduction goals for nonpoint sources by improving coordination between existing programs. In July 1998, the EMC began a process to adopt rules which were adopted in October 2000 to achieve the 30 percent nitrogen reduction goal. In addition to a 30 percent reduction of nitrogen, the new rule also prevents phosphorus increases from agriculture in the Tar-Pamlico River Basin.

- Neuse Buffer Protection - The EMC adopted rules which would require 50 foot riparian protected areas around perennial and intermittent streams in the Neuse River Basin. This was the first time in North Carolina that streams in an entire basin received this level of protection.

6. **Point Source Control Initiatives**

- During the past 20 years, industries and municipalities have applied considerable resources to waste treatment to meet more stringent water quality requirements. Even though permitted wastewater flow across the rivers has increased over the past 20 to 25 years, the actual amount of waste going into the rivers has decreased. The graph below illustrates how the Biochemical Oxygen Demand (BOD) loading has been reduced in the Cape Fear River Basin.



- Recent federal EPA rules will create a mandate Total Daily Maximum Limits (TMDL's) for all impaired waters. Compliance with this rule will present a challenge of meeting the federal schedule and will be taxing on the State's resources.

7. Interagency Cooperation

- ModMon - The Neuse River Modeling and Monitoring (ModMon) project is sponsored by the N.C. Department of Environment and Natural Resources (DENR) and the Water Resources Research Institute (WRRI). This interdisciplinary effort involves scientists from the University of North Carolina at Chapel Hill, UNC-Charlotte, North Carolina State University, East Carolina University, Duke University, National Marine Fisheries, NC Division of Water Quality, U.S. Geological Survey and private industry. The scientists contribute in their particular areas of expertise to the development of predictive models that are based on monitoring of the estuary's water quality, sediments, hydrology and fish populations resulting in more accurate data on which to base clean up efforts.

- Clean Water Management Trust Fund - The trust fund represents a substantial financial commitment on the part of North Carolina leaders to achieve water quality improvements. The General Assembly appropriated $30 million to the trust fund in 2000; this amount will be increased to $100 million by 2003. The fund has helped state and local government and agencies to work more closely to develop projects that can achieve improved water quality. These projects include purchase of buffers and conservation easements surrounding sensitive waters.

- North Carolina Wetland Restoration Program (NCWRP) - The NCWRP worked with the Natural Resource Conservation Service and the U.S Fish and Wildlife Service to initiate the North Carolina Wetlands Partnership. On September 2, 1998, DWQ and 25 other agencies signed a Memorandum of Understanding to encourage organizational commitment to the partnership effort. The agreement represents an extraordinary effort on the part of many agencies to work together to maximize the ecological benefits from each dollar spent on funding, design, implementation and a long term management project.

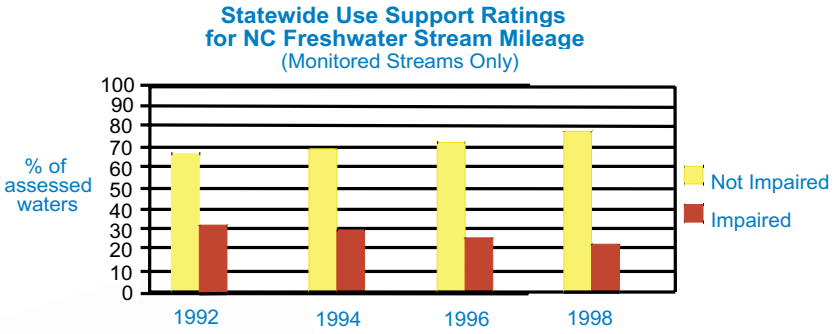
- Unified Watershed Assessment (UWA) - As part of the UWA approach, discussed earlier under Basinwide Planning/Stakeholder Initiatives, DWQ has coordinated with a wide variety of state, local and federal agencies in assessing watersheds and developing restoration action strategies.

- DOT-DENR Wetland Agreement - To improve wetland protection coordination, the state departments of Transportation and Environment and Natural Resources in July 1999 signed a landmark agreement launching a partnership to protect the state's wetlands and streams. The agreement calls for the Department of Transportation to pay DENR's Division of Water Quality $17.5 million during the next seven years to locate wetlands and streams most in need of restoration in the state's 17 river basins. Also, during the next seven years, the DOT's Transportation Improvement Program sets aside $17.5 million to protect wetlands, restore streams and preserve wildlife habitat.

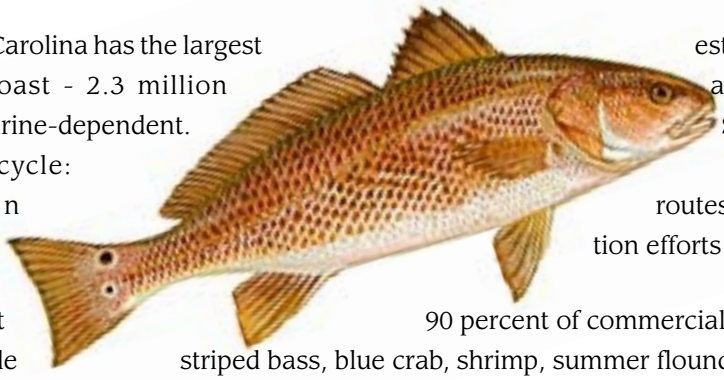
Discussion of Use Support Trends

Use support ratings determine how well a water body supports its designated use. Designated uses include aquatic life support, fish consumption, shellfish harvesting and drinking water supply. Although the use support ratings do indicate some trends, interpretation of the ratings and use as a trend measuring tool should be done with caution. In addition to periodic changes by the Environmental Protection Agency in what data is used to define as "supporting a use," the advance in monitoring technologies has allowed for detection of pollutants that were not previously found, or detected at lower levels than before. This has occurred with many metals, such as mercury, where data collected using earlier equipment did not show a level of impairment. Although defining a trend is difficult, the use support assessment has shown a decrease in the number of streams segments on the impaired list. (See below: chart being updated with 2000 data.)

The state recognizes that additional resources must be applied to provide more water quality trends data and to make existing trends information more readily accessible to the public. This initiative has been given priority for 2000-01 and results are expected during this fiscal year.



Coastal Fisheries



North Carolina has the largest estuarine system of any single state on the Atlantic coast - 2.3 million acres. Our coastal fisheries are overwhelmingly estuarine-dependent. Species must utilize estuaries to complete their life-cycle: spawning, nursery areas, feeding areas, and migration routes. This is why water quality protection and restoration efforts are so critically important.

About 90 percent of commercial landings are of estuarine-dependent species. They include striped bass, blue crab, shrimp, summer flounder, hard clam, and weakfish. Meanwhile, about two-thirds of recreational landings are of estuarine-dependent species, including spotted seatrout, red drum, southern flounder, Atlantic croaker and spot.

Fish from North Carolina estuaries and coastal rivers migrate throughout the Atlantic coast and support significant commercial fisheries along the Atlantic seaboard. Cape Hatteras represents the major dividing point between northern and southern habitats, fish and fisheries. Southern shrimp and subtropical reef fish are taken in abundance in North Carolina, northern lobster and Florida spiny lobster are taken off our coast and cod, polluck, Atlantic mackerel are often found off our Outer Banks in the winter.

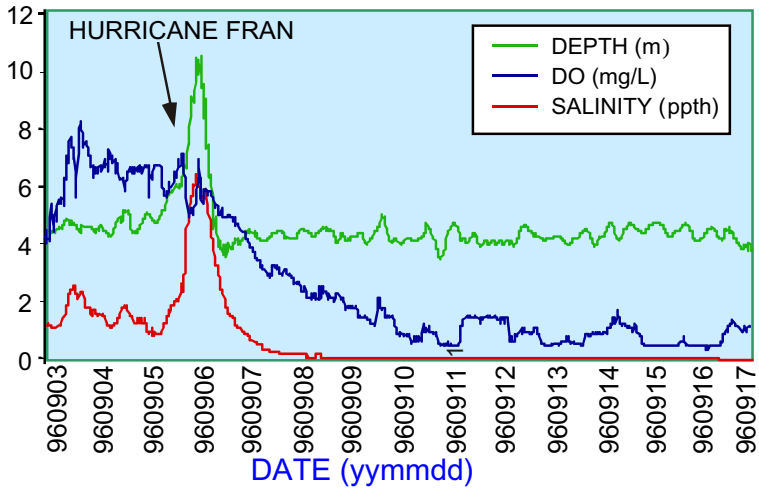
North Carolina annually ranks among the top 10 states in the nation in both commercial and recreational landings, and North Carolina leads the Atlantic coast states in landings of croaker, spot, bluefish, blue crabs, summer flounder and sharks. Our coastal fishing industry (commercial and recreational) contributes more than $1 billion annually to the state's economy. We have approximately 8,000 licensed commercial fishermen in North Carolina, and about 1.2 million persons fish recreationally with rod and reel annually in our coastal waters.

Nutrients and Estuaries

North Carolina has some of the most productive estuaries in the world, including fertile nurseries that support abundant commercial and recreational fishing. One important problem that faces these resources is excessive nutrients from multiple sources, which is commonly referred to as eutrophic . . . the over-loading of nutrients or the actual depletion of oxygen that results from the algal process. Algae growing in very high numbers can lead to depletion of dissolved oxygen, an imbalance in the natural food chain, or be directly toxic to other organisms such as fish. Nitrogen entering the estuaries needs to be reduced to a level that can be assimilated by algae before they create nuisance blooms.

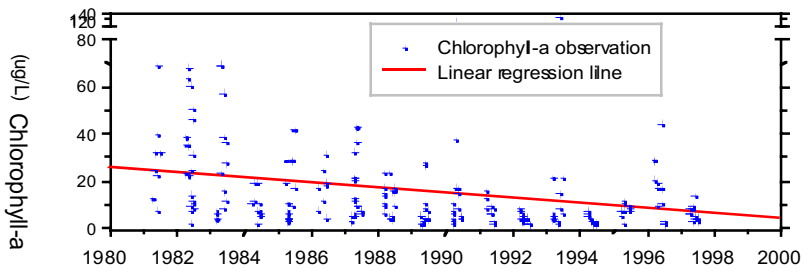
When evaluating water quality in estuaries, it is important to account for the highly variable nature of these systems. Increased monitoring and cooperation by the state, the universities, citizen groups and industry provide much more efficient water quality measures. Continuous monitors record various important measures on 15-minute increments (see graph below) and capture the daily variability and effects of major storms such as Hurricanes Fran or Floyd. The Neuse and Pamlico River Rapid Response Teams provide the resources to step up monitoring, coordinate activities and improve response time to environmental problems.

Impacts from Hurricane Fran as Measured at the Highway 42 Bridge, Cape Fear River



As nutrient controls are implemented, improvements can be measured by a decrease in limiting nutrients or a decrease in the frequency and duration of algal blooms. Eutrophication is a slow process and response to reversing the enrichment of an estuary may take a long time as well. Controls implemented in the Chowan River in the early 1980s appear to already be showing positive results. Blue green algal blooms that plagued the river for a decade have been infrequent in recent years. Measured chlorophyll concentrations have demonstrated a slow but significant decrease through time.

Summer (June-Sept) chlorophyll-a concentrations from three monitoring stations on the Chowan river.
(1. Holiday Island, 2. Marker 17 near Colerain and 3. US 17 near Edenton; x-axis represents year)



Fish Kills and Disease - What's Being Done

Diseased fish have been present and fish kills (primarily Menhaden) have occurred in the lower Neuse, Pamlico and New rivers for at least 20 years. Significant research efforts are on-going to improve understanding of these events. Although scientists offer differing theories on fish kill causes, they agree that reduction of nitrogen entering these estuaries is necessary and management actions are in place to achieve reductions. Efforts include:

- Frequent, coordinated monitoring of nutrient delivery and biological response;
- More stringent controls to reduce nutrients entering the estuaries;
- Scientific research to better understand development fish disease and fish kills;
- Improved information and data availability via the World Wide Web;
- Implementation of the ModMon strategy; and
- Implementation of Basinwide and National Estuary Program strategies.

Animal Waste Management

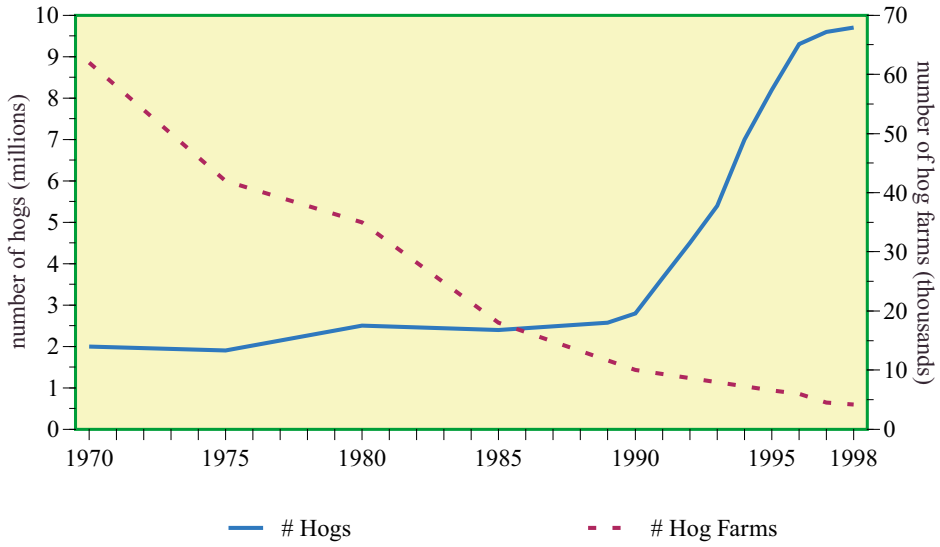
Prior to February 1, 1993, waste treatment systems for animal operations were deemed permitted by EMC rules as non-discharge facilities as long as the manure was land applied at agronomic rates and the facilities did not discharge to the surface waters. As a result of the projected rapid growth of the animal industry in North Carolina, a need was identified to modify these rules. On February 1, 1993, new rules became effective that required large animal facilities and problem facilities to develop Certified Animal Waste Management Plans by December 31, 1997.

The industry continued to grow, with facilities becoming larger and the animal population growing dramatically. At the same time, the total number of facilities raising swine decreased dramatically. See table below.

As potential environmental problems with existing, expanding and new facilities have been identified, the General Assembly has continued to pass new legislation to help address these concerns. Animal legislation has been passed each year since 1995. This legislation has required facility permitting; increased buffer requirements for new and expanding facilities; annual facility inspections by DWQ staff, annual Operational Reviews by Division of Soil and Water Conservation staff, a moratorium on new anaerobic swine lagoons, record-keeping requirements, and operator certification. The moratorium on new aerobic swine facilities is scheduled to expire in 2001. The NC Legislature will be faced with how to permit these facilities once the moratorium expires. Governor Hunt, in 1999, released his Framework for the Conversion of Anaerobic Swine Waste Lagoons and Sprayfields. This comprehensive plan identifies risks of existing and abandoned lagoon and sprayfield systems and evaluates technologies that could be used to replace these systems within a 10-year period. Several teams, lead by DENR staff but including many interested parties, are preparing recommendations to implement the conversion plan.

In September of 2000, Attorney General Easley reached a landmark agreement with Smithfield Foods, Inc. to phase out hog lagoons and implement new technologies that will substantially reduce pollutants from hog farms. The agreement commits Smithfield to phase out all anerobic lagoon systems on 276 company-owned farms. Legislation will be required to phase out the remaining systems statewide within a 5-year period.

Swine Production in North Carolina



Number of Hogs vs. Number of Hog Farms
Statewide, 1970-1998

Sedimentation

Sediment is the number one pollutant by volume in North Carolina. Land-disturbing activities for construction are primary causes of accelerated erosion. The rate of erosion can vary from almost nothing on lands where good conservation practices are used to over 100 tons of soil per acre per year on some poorly managed sites. Sediment can quickly fill rivers, lakes and reservoirs, thus reducing fish populations and municipal water supplies' storage capacity. Sediment reduces the amount of dissolved oxygen in our waters by restricting the amount of sunlight reaching aquatic plants. Sediment also increases the cost of water treatment, which ultimately is passed on to the consumer. Erosion and sedimentation can be significantly reduced when erosion and sedimentation control practices are used on construction sites.

In June 1997, a sediment plume was discovered flowing down the entire length of the Neuse River from the source of contamination in Raleigh to New Bern. The sediment plume in the Neuse raised concerns all across the state. At the request of Governor Jim Hunt, the North Carolina Sedimentation Control Commission (Commission) and the Department of Environment and Natural Resources developed a plan of action to improve the effectiveness of erosion and sedimentation control efforts; tighten standards; improve

enforcement; and enhance technical assistance for the state's erosion and sedimentation control program. The General Assembly also added 14 more inspectors in response to Governor Hunt's requests. Now, site inspections are conducted every 4.5 months as opposed to one every six months. With 7,000 sites and 34 inspectors, more inspectors will be needed to inspect sites, which are expected to increase in the years ahead.

The commission made the following recommendations to the legislature's Environmental Review Committee as part of its Plan of Action to improve erosion and sedimentation control:

1. Exposed slopes on construction sites should be provided with temporary ground cover sufficient to control erosion within fifteen working days or thirty calendar days of completion of any phase of grading, whichever is shorter.
2. Stop-work orders should be issued for as long as five days.

These changes to the Sedimentation Pollution Control Act of 1973 (Act) were enacted by the N.C. General Assembly in August 1998.

In addition to the above statutory changes, the Commission initiated rulemaking to change the requirement for permanent ground cover, to require notification of start-up of land disturbing activity, to allow programs to require preconstruction conferences, and to change the procedure for assessing civil penalties. These rule changes became effective on July 1, 2000.

During its 1999 session, the NC General Assembly passed House Bill 1098, "An Act to Strengthen the Sedimentation Pollution Control Act of 1973 and to Require that the Examination for a General Contractors' License Include Questions that Test an Applicant's Knowledge of the Requirements of the Sedimentation Pollution Control Act of 1973." The bill made the following changes to the Act:

- Increased the maximum civil penalty for violating the Act from $500 to $5,000 per day.
- Provided that a person may be assessed a civil penalty from the date a violation is detected.
- Clarified that a person may be assessed a one-time civil penalty of up to $5,000 for the day the violation is first detected.
- Provided that approval of an erosion control plan is conditioned on compliance with federal and state water quality laws, regulations, and rules.
- Provided that any erosion control plan that involves using ditches for the purpose of dewatering or lowering the water table must be forwarded to the director of the Division of Water Quality.The bill also amended the General Statutes governing licensing of general contractors (Chapter 87) to provide that the State Licensing Board for General Contractors shall test applicants' knowledge ofrequirements of the Act and rules adopted pursuant to the Act. These changes are all designed to reduce theamount of sedimentation reaching North Carolina waters from construction sources.

Groundwater Quality

Landfills- Approximately 210 owners or responsible parties of landfills of all types in North Carolina submit water quality data on a regular basis. Recent data shows 83 are conducting some phase of water quality assessment or corrective action. About 40 of that group are unlined municipal solid waste facilities that closed prior to 1993. Of the remaining 43, 13 are under assessment monitoring and 30 are beyond monitoring into a water quality assessment to determine the extent and degree of contamination. Corrective action may include cap improvements, acquiring buffers to control adjacent land use, deed restrictions of the contaminated property, and active remediation. Seven of the sites are implementing specific corrective measures to mitigate contamination.

Underground Storage Tanks- Through June 30, 1999, there have been a cumulative total of almost 13,400 releases of mainly petroleum products from underground tanks. Cleanups have been completed at 38 percent of the sites. Groundwater specialists within DENR recognize the lack of information about groundwater quality on a regional or statewide basis. Groundwater quality monitoring is being increased to address this deficiency. There is also considerable demand for funds from the State Leaking Underground Storage Tank program. Legislative action will be necessary to insure the solvency of the fund.

What can you do to protect our water quality?

(1) Participate in stream and waterway clean-up programs such as Big Sweep, which instill a sense of pride while removing debris. http://www.charweb.org/organizations/bigsweep/index.html

(2) Contact your regional Department of Environment and Natural Resources offices before beginning construction of an access road or a driveway for information on ways to minimize and reduce erosion. http://esb.ehnr.state.nc.us/regions.htm

(3) Follow the directions on the label if you fertilize and do not over-fertilize. Some nutrients in fertilizer are water-soluble and can drain directly to the nearest creek or stream that then drain to a larger water-body causing algae growth.

(4) Use alternatives to household hazardous substances, such as: Vinegar, water and salt instead of harsh ammonia-based cleaners; Baking soda and a scrub brush instead of toxic toilet bowl cleaners; Boiling water, baking soda and vinegar instead of highly toxic drain cleaners.

(5) Dispose of hazardous household chemicals, such as paints and petroleum products, at hazardous waste collection sites.

(6) Maintain your automobile and immediately repair oil leaks and avoid gas tank spillovers. Dispose of used motor oil in recycling centers, not in a storm drain or on land.

(7) Encourage your local governments to designate "greenways" along water-bodies. Look in your phonebook under city and county government.

(8) Protect riparian buffers on private property. Also, support your local government's buffer initiatives.

(9) Minimize and/or avoid flushing household chemicals, such as cooking oils, paints, solvents, and disinfectants down the drain. These substances can kill microorganisms in your septic tank and pollute groundwater. Also, these items can overwhelm a city sewer line or affect treatment capability.

(10) Research and purchase appliances and products that reduce water consumption. These products include clothes washers, dishwashers, toilets, and/or showerheads.